Remarks

Claims 28-53 are pending in this application prior to entry of this Amendment. By this amendment, Applicant has cancelled claims 2-5, 8-10, 12-14, 17-19, and 24-28 and added new claims 54-80 so as to advance prosecution in this case. No new matter has been introduced by these amendments. Applicant believes that the application, as amended, is in condition for allowance and respectfully requests reconsideration in view of the above amendments and the following remarks.

1. Election/Restrictions

The Examiner has issued a final restriction requirement with respect to claims 48-50. As of this paper, the Applicant has cancelled claims 48-50. Therefore, Applicant respectfully submits that the restriction requirement issue is now moot.

2. Claim Rejections under 35 U.S.C. § 112

The Examiner rejected claims 29, 31, 34, and 44-47 under *35 U.S.C. § 112* as failing to particularly point out and distinctly claim the subject matter which the Applicant regards as the invention. As of this paper, the Applicants have canceled claims 29, 31, 34, and 44-47.

3. Claim Rejections under 35 U.S.C. § 102

Claims 28-33 stand rejected under *35 U.S.C. §102(b)* as being clearly anticipated by U.S. Patent No. 4,084,583 to Hjort ("Hjort"). Furthermore, claims 28-34 and claims 40-42 stand rejected under *35 U.S.C. §102(b)* as being clearly anticipated by U.S. Patent No. 5,724,984 to Arnold et al. ("Arnold"). The Applicant respectfully submits that the new claims presented within this amendment are patentable and non-anticipated over both Hjort and Arnold.

a. Independent Claim 54

Independent claim 54 provides a multielectrode for measuring a low amplitude bioelectrical signal at a detection site. The multielectrode comprises a carrier that includes at least one active electrode surface and at least a first and a second reference electrode surface. The multielectrode further comprises a processor that is in electrical communication with the carrier. The processor is configured to receive the low amplitude bioelectrical signal using the at least one active electrode surface and the at least first reference electrode surface. The low amplitude bioelectrical signal received being in response to an applied bioelectrical stimulus signal. The processor is further configured to determine an evoked first bioelectrical potential difference a plurality of times, wherein the evoked first bioelectrical potential difference is based upon the low amplitude bioelectrical signal received using the at least one active electrode surface and the at least first reference electrode surface. The processor is further configured to receive the same low amplitude bioelectrical signal using the at least one active electrode surface and the at least second reference electrode surface. The low amplitude bioelectrical signal received being in response to an applied bioelectrical stimulus signal. The processor is further configured to determine an evoked second bioelectrical potential difference, a plurality of times, wherein the evoked second bioelectrical potential difference is based upon the low amplitude bioelectrical signal received using the at least one active electrode surface and the at least second reference electrode surface. The processor is further configured to sum the plurality of evoked first bioelectrical potential differences and the plurality of evoked second bioelectrical potential differences in order to increase the signal-to-noise ratio of the low amplitude bioelectrical signal.

b. Comparison of Independent Claim 54 to Hjort and Arnold

In the December 31, 2008 office action, the Examiner states that the electrode structure of Applicant's invention is disclosed in Hjort at column 4, line 55 through column 5, line 34. In addition, Examiner states that Applicant's electrode structure is disclosed in Arnold at column 3, line 35 to column 4, line 16. Based upon added independent claim 54, Applicant respectfully disagrees.

With reference to the disclosure, Hjort discloses:

> [A] method for measuring the bioelectric activity which occurs under a measuring electrode (signal electrode) attached to or resting on a patient, in which method a plurality of auxiliary electrodes attached to the patient are employed whose potentials produce a mean potential value, and wherein the difference between said mean potential value and the potential of the signal electrode is measured and supplied, for example, to a device for recording the measured value ... [T]he difference voltage is formed as the difference between the potential of signal electrode 110, which potential is supplied to the input of differential amplifier 115, and the mean value of the potentials of auxiliary electrodes 111 to 114, said mean value being received at reference point 116 and supplied to the second input of said differential amplifier 115. (Column 1, Lines 7-16 & Column 5, Lines 35-44) (Emphasis added).

Stated differently, Hjort discloses a method for measuring an incoming bioelectrical signal at a measuring electrode. (Column 3, Lines 26-34). Furthermore, Hjort discloses determining the mean value of the bioelectric signal using a plurality of surrounding auxiliary electrodes. Finally Hjort discloses determining the difference between the bioelectrical signal measured at the signal electrode (i.e., the bioelectrical signal at the centrally located measuring electrode) and the mean value measurement of the bioelectrical signal measured using the plurality of auxiliary electrodes (i.e., the bioelectrical signals taken at the periphery surrounding the centrally located measuring electrode).

With reference to the disclosure, Arnold discloses:

> Use of the three exterior segments 20a, 20b and 20c ... surrounding [a] center segment 15. In particular, it is often desirable to measure the average voltage underlying the ring defined by the segments 20a, 20b, 20c. If a continuous ring were used, and the skin were inconsistently conductive, then the resulting signal would be a weighted average of the voltages underlying the ring, with a heavier weight being applied to regions of high conductivity. By separating the ring into multiple segments and electronically buffering and adding the contribution of each ring segment, the multi-segment electrode 10 prevents one segment of the ring from dominating an average voltage signal produced for the ring. (Column 4, Lines

17-31) (Emphasis added).

Similar to Hjort, Arnold discloses a center segment (e.g., measuring electrode) surrounded by three exterior segments (e.g., auxiliary electrodes). Also similar to Hjort, Arnold averages the incoming bioelectric signal received by the three exterior segments and compares this averaged bioelectrical signal against the bioelectrical signal received at the center segment.

Consequently, both Hjort and Arnold fail to disclose a multielectrode that determines an evoked first bioelectrical potential difference a plurality of times using at least one active electrode and at least a first reference electrode and determining an evoked second bioelectrical potential difference a plurality of times using the at least one active electrode and at least a second reference electrode. Furthermore, both Hjort and Arnold fail to disclose summing the plurality of evoked first bioelectrical potential differences and the plurality of evoked second bioelectrical potential differences in order to increase the signal-to-noise ratio of the low amplitude bioelectrical signal

Applicant submits that Hjort and Arnold fail to anticipate all of the claim limitations of added independent claim 54. Applicant further submits that Hjort and Arnold fail to anticipate independent claims 65 and 76 which contain similar limitations as those set forth by independent claim 54. With respect to the dependent claims rejected in this application, Applicant respectfully submits that the dependent claims are believed to be allowable for at least the reasons set forth with respect to their base claims and further due to the additional features they recite. Separate and individual consideration of each of Applicants' allowable claims is respectfully requested. Therefore, the Applicants respectfully request reconsideration of the above rejections and ask that this case be passed to issuance.

4. Claim Rejections under 35 U.S.C. § 103

Examiner has also rejected claims 35, 36, and 43 under *35 U.S.C. §103(a)* as being unpatentable over Arnold in view of U.S. Patent Number 6,961,603 to Merilainen ("Merilainen"). Examiner has also rejected claims 37-39 under *35 U.S.C. §103(a)* as being

unpatentable over Arnold in view of U.S. Patent Number 4,082,087 to Howson ("Howson"). Examiner has also rejected claims 44-47 under *35 U.S.C. §103(a)* as being unpatentable over Hjort. Lastly, Examiner has rejected claims 51-53 under *35 U.S.C. §103(a)* as being unpatentable over Arnold.

Applicant submits that both Arnold and Hjort fail to teach or even mildly suggest the Applicant's claimed invention as stated in independent claims 54, 65, and 76. Furthermore, none of the combinations cited above correct the deficiencies lacking in both Arnold and Hjort. Therefore, Applicant respectfully submits that independent claims 54, 65, and 76, and the claims that depend therefrom, are patentable and non-obvious over the above rejections.

CONCLUSION

Applicants have made a genuine effort to respond to each of the Examiner's objections and rejections in an effort to advance the prosecution of this case. Applicants believe that all formal and substantive requirements for patentability have been met and that this case is in condition for allowance, which action is respectfully requested. If any additional issues need to be resolved, the Examiner is requested to telephone the undersigned at his convenience.

No fee is believed due by filing this Amendment. However, please charge any fees or credit any overpayments as a result of the filing of this paper to our Deposit Account No. 02-3978.

Respectfully submitted,

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